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**CONTROLLED DOCUMENT**  
EG&G - ROCKY FLATS PLANT  
ENVIRONMENTAL MANAGEMENT

This is a RED Stamp

**ROCKY FLATS PLANT  
EMD OPERATING  
PROCEDURES MANUAL**

Manual No.: 5-21200-OPS-EE  
Procedure No.: Table of Contents, Rev 2  
Page: 1 of 2  
Effective Date: 8/11/92  
Organization: Environmental Management

THIS IS ONE VOLUME OF A SIX VOLUME SET WHICH INCLUDES:

VOLUME I: FIELD OPERATIONS (FO)  
VOLUME II: GROUNDWATER (GW)  
VOLUME III: GEOTECHNICAL (GT)  
VOLUME IV: SURFACE WATER (SW)  
VOLUME V: ECOLOGY (EE)  
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EE.01	Sampling of Periphyton	1	5/91
EE.02	Sampling of Benthic Macroinvertebrates	1	5/91
EE.03	Sampling of Plankton	1	5/91
EE.04.	Sampling of Fishes	1	5/91
EE.05	Sampling of Large Mammals	1	5/91
EE.06	Sampling of Small Mammals	1	5/91
EE.07	Sampling of Birds	1	5/91
EE.08	Sampling of Reptiles and Amphibians	1	5/91
EE.09	Sampling of Terrestrial Arthropods	1	5/91
EE.10	Sampling of Vegetation	1	5/91
DCN 91.01	Superseded by DCN # 92.01	1	08/11/92
DCN 92.01	To Clarify Methods for Conducting Vegetation Surveys	1	08/11/92
EE.11	Identification of Habitat Types	1	5/91

**DOCUMENT CLASSIFICATION REVIEW WAIVER  
PER R.B. HOFFMAN, CLASSIFICATION OFFICE  
JUNE 11, 1991**

**ADMIN RECORD**

A-SW-001073

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<b><u>Procedure No.</u></b>	<b><u>Title</u></b>	<b><u>Rev. No.</u></b>	<b><u>Effective Date</u></b>
EE.12	Sampling of Soil for Soil Description	1	5/91
EE.13	Development of Ecology Field Sampling Plans	1	5/91
DCN 91.01	Superseded by DCN # 92.01	1	08/11/92
DCN 92.01	The Outline for a Field Sampling Plan is Modified	1	08/11/92
APPA	Appendix A: Species Codes Assignment of Species Codes	1	5/91
APPB	Appendix B: Wildlife Habitat Code Assignment of Wildlife Habitat Codes	1	5/91

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EG&G - ROCKY FLATS PLANT DOCUMENT CHANGE NOTICE (DCN)  
ENVIRONMENTAL MANAGEMENT

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5-21200-OPS-EE.13

Procedure Number Ecology Volume V, # 5.13, REV 1.DF (EE.13)

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Title Development of Ecology Field Sampling Plans	Date 8-11-92	DCN Number EE.13 9201 cm.
Expires <u>Upon Incorporation</u> 11/11/92 Procedure Revision Required <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Scope Limitation _____		

Item Number	Page	Step or Paragraph	Changes (Use DCN CONTINUATION SHEET for Additional Space)
1	20	Sec. 6.5	The outline for a field sampling plan shall be modified as per Attachment 1. (See Attachment).

Justification (Reason for Change – Provide Numbers To Reference Corresponding Items Above)

As written, the Field Sampling Plan outline does not show enough detail. To clarify and make it more specific, details have been added to the outline. Also, slight adjustments were made which relocate specific sections of the outline. No sections were deleted, only rearranged. Some words were changed to parallel the EPA Guidance Document - EPA/540/G-89/004

Concurrence	Organization	Req	Date	Concurrence	Organization	Req	Date
<i>[Signature]</i>	QAPM	X			User	X	
<i>[Signature]</i>	EOM	X	11 Aug 92	<i>[Signature]</i>			8.11.92
<i>[Signature]</i>	END		8.11.92				
Approval of Responsible Manager <i>[Signature]</i>		Date 8-11-92		Is Posting Req'd? <input type="checkbox"/> Yes <input type="checkbox"/> No		If Yes, By What Date?	
						Date Posted	

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EE.13-BEN  
92.01

## Field Sampling Plan Outline

### I. Site Background

#### A. Study site detail

1. Operable Unit description
  - a. location at RFP, areal extent including potential zone of influence
  - b. IHSS's within the OU
  - c. overview of the ecology at the OU
    1. vegetation / habitats
    2. wildlife
    3. aquatics / habitats
2. Synopsis of OU specific contamination information
  - a. Brief summary of RI activities completed at the site to-date
  - b. List of contaminants detected at the OU
  - c. References to other documents containing RI results
3. Preliminary toxicity assessment
  - a. Summary of the concentrations of contaminants detected
  - b. Standards, ARARs, or limits set for the ecology risk assessment
  - c. Summary of contaminant levels exceeding applicable limits
  - d. Brief assessment of potential exposure pathways for biota

### II. Program Objectives

#### A. Purpose and scope of Environmental Evaluations

1. Purpose and scope of the OU EE
2. General objectives of the OU EE
3. Summary of EE DQOs

#### B. Purpose and scope of the Field Sampling Plan

1. FSP application of COCs
2. FSP application of selected Target Taxa

#### C. General Field Sampling Approach

1. ecological studies
2. analytical studies

### III. Habitat and Taxon-Specific Sampling

#### A. Study Locations

1. Sampling Sites
  - a. rationale for OU sampling site selection
  - b. identification of OU sampling sites
2. Reference Sites
  - a. rationale for reference site selection
  - b. identification of reference sites
  - c. Differences between study sites and reference sites
3. Overlap of study objectives among different OUs

#### B. Terrestrial sampling

1. Plants
  - a. Sampling objectives
  - b. Sample locations
    1. study sites

- 2. reference sites
    - c. Sampling equipment and procedures
      - 1. state methods and reference SOPs
    - d. Sampling frequency
      - 1. list sample size
      - 2. sample times and dates
    - e. QA/QC sampling
  - 2. Insects
    - a. Sampling objectives
    - b. Sample locations
      - 1. study sites
      - 2. reference sites
    - c. Sampling equipment and procedures
      - 1. state methods and reference SOPs
    - d. Sampling frequency
      - 1. list sample size
      - 2. sample times and dates
    - e. QA/QC sampling
  - 3. Birds
    - a. Sampling objectives
    - b. Sample locations
      - 1. study sites
      - 2. reference sites
    - c. Sampling equipment and procedures
      - 1. state methods and reference SOPs
    - d. Sampling frequency
      - 1. list sample size
      - 2. sample times and dates
    - e. QA/QC sampling
  - 4. Mammals
    - a. Sampling objectives
    - b. Sample locations
      - 1. study sites
      - 2. reference sites
    - c. Sampling equipment and procedures
      - 1. state methods and reference SOPs
    - d. Sampling frequency
      - 1. list sample size
      - 2. sample times and dates
    - e. QA/QC sampling
- C. Aquatic sampling
- 1. Plants
    - a. Sampling objectives
    - b. Sample locations
      - 1. study sites
      - 2. reference sites
    - c. Sampling equipment and procedures
      - 1. state methods and reference SOPs

- d. Sampling frequency
  - 1. list sample size
  - 2. sample times and dates
- e. QA/QC sampling
- 2. Invertebrates
  - a. Sampling objectives
  - b. Sample locations
    - 1. study sites
    - 2. reference sites
  - c. Sampling equipment and procedures
    - 1. state methods and reference SOPs
  - d. Sampling frequency
    - 1. list sample size
    - 2. Sample times and dates
  - e. QA/QC sampling
- 3. Amphibians
  - a. Sampling objectives
  - b. Sample locations
    - 1. study sites
    - 2. reference sites
  - c. Sampling equipment and procedures
    - 1. state methods and reference SOPs
  - d. Sampling frequency
    - 1. list sample size
    - 2. sample times and dates
  - e. QA/QC sampling
- 4. Fishes
  - a. Sampling objectives
  - b. Sample locations
    - 1. study sites
    - 2. reference sites
  - c. Sampling equipment and procedures
    - 1. state methods and reference SOPs
  - d. Sampling frequency
    - 1. list sample size
    - 2. Sample times and dates
  - e. QA/QC sampling

#### IV. Contaminants of Concern and Target Taxa

- A. Contaminants of Concern (COC)
  - 1. Criteria for selection of COCs
  - 2. Preliminary selection of COCs
    - a. Justification for application of selection criteria
- B. Ecological receptors of concern
  - 1. Criteria for selection of ecological receptors of concern
  - 2. Preliminary taxa and tissues selected as ecological receptors of concern
    - a. Justification for application of selection criteria

## V. Sample Handling and Analysis

### A. Terrestrial

1. Sample designation
  - a. taxa
  - b. tissues
  - c. number of samples and sample coding
  - d. samples from study sites vs. samples from reference sites
  - e. laboratory QA sample requirements
2. Chemical analyses
  - a. selection of target analytes
  - b. laboratory requirements
    1. sample volumes
    2. sample preservation & handling
3. Terrestrial Sampling Matrix

### B. Aquatic

1. Sample designation
  - a. taxa
  - b. tissues
  - c. number of samples and sample coding
  - d. samples from study sites vs. samples from reference sites
  - e. laboratory QA sample requirements
2. Chemical analyses
  - a. selection of target analytes
  - b. laboratory requirements
    1. sample volumes
    2. sample preservation & handling
3. Aquatic Sampling Matrix

## VI. Toxicity Testing

1. Sampling objectives
2. Sample locations
  - a. media to be collected
3. Sampling equipment and procedures (reference to SOPs)
4. Sampling frequency
5. QA/QC sampling
6. Sample Handling and Analyses
  - a. species and protocols used
  - b. laboratory QA